

Appl. No. 10/817,379
Amdt. dated Dec. 20, 2005
Reply to Office Action of Oct. 3, 2005

REMARKS/ARGUMENTS

Entry of this amendment and reconsideration of the present application, as amended, are respectfully requested.

Claims 1-24, 26-28 and new claims 35-43 are pending in this application, claims 25 and 29-34 have been cancelled, claims 29-34 without prejudice to filing a divisional application directed to the subject matter of these claims. Claims 35-43 are directed to the elected embodiment and therefore should be considered in this application together with claims 1-24 and 26-28.

Claims 1, 5, 9, 10, 12, 17, 19, 23 and 26-28 are amended. Unless an argument is made below in support of the patentability of these claims over prior art applied by the Examiner in a rejection thereof in view of an amendment thereto, the changes to the claims do not relate to patentability.

Drawings

The drawings were objected to under 37 C.F.R. §1.83(a) on the grounds that the embodiments of the multiple or single inelastic and/or elastic films, the configuration of an inner airbag within an outer airbag, the valve arrangements, and the vent arrangements are not shown.

As to the single or multiple inelastic and/or elastic films, this feature is shown and described with respect to, e.g., Figs. 1-1D wherein the use of one elastic layer and one inelastic layer are described.

As to an airbag including an outer airbag and an inner airbag, this feature is shown and described with respect to, e.g., Fig. 1 wherein layer 321 is an inner airbag and may be made of an elastomer and layer 322 is an outer airbag and may be made of a more rigid film (see the specification at, e.g., page 32, lines 2-8).

As to the valve arrangements, this feature is shown and described with respect to, e.g., Figs. 16, 16A and 17 wherein one-way valves 444 are provided between airbag compartments (see the specification at, e.g., page 45, line 35 to page 46, line 2).

As to the vent arrangements, this feature is shown and described with respect to, e.g., Figs. 23 and 23A wherein a variable, pressure-responsive vent 410 is provided (see the specification at, e.g., page 50, lines 15-30).

It is noted that the application of many features described throughout the specification, including those mentioned above, in conjunction with a knee bolster airbag is expressly mentioned when describing the knee bolster airbag at page 37, lines 20-25, and page 37, line 34 to page 38, line 2.

In view of the foregoing, it is respectfully submitted that the Examiner's objection to the drawings has been overcome and should be removed.

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Claim Objections

Claims 5 and 9 were objected to because of the following informalities: "vet" should be "vent" (claim 5, line 4) and "a layer" should be "a second layer" (claim 9, line 2).

Claims 5 and 9 have been amended as suggested by the Examiner and in view of the amendments, the Examiner's objection of claims 5 and 9 has been overcome and should be removed.

Claim Rejections-35 U.S.C. §101

Claims 12 and 25 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter, i.e., the claims compare the width of the airbag to the width of an occupant's knees.

Claim 12 has been amended to remove reference to the knees of an occupant and claim 25 has been cancelled. As such, it is respectfully submitted that the Examiner's rejection of claims 12 and 25 under 35 U.S.C. §101 has been overcome and should be removed.

Claim Rejections-35 U.S.C. §102

Graebe

Claims 1, 12, 15-21, 23 and 25-27 were rejected under 35 U.S.C. §102(b) as being anticipated by Graebe (U.S. Pat. 3,747,952).

The Examiner's rejection is respectfully traversed in view of amendments to independent claims 1, 17, 19, 23 and 26.

Claim 1 is amended to recite a single knee protection airbag having a storage position and a deployed position and which defines a plurality of interconnected, adjoining cells. Claim 17 is amended to recite a single airbag having a plurality of interconnected, adjoining cells. Claim 19 is amended to recite a single airbag having a plurality of interconnected, adjoining chambers. Claim 23 is amended to recite a single compartmentalized airbag having a plurality of interconnected, adjoining compartments. Claim 26 is amended to recite a single inflatable airbag comprising a plurality of interconnected, adjoining cells.

In the present claimed invention, the airbag defines multiple interconnected cells, chambers or compartments which adjoin one another (see Fig. 6). There is therefore a single enclosure within which the multiple cells, chambers or compartments are defined.

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In contrast to the invention, in Graebe, there are a plurality of airbags, i.e., each tube element 40 is a separate airbag defining a single interior space. There is no single airbag which defines interconnected, adjoining cells, chambers or compartments.

In view of this difference, Graebe does not disclose, teach or suggest all of the features of claims 1, 17, 19, 23 and 26 and therefore cannot anticipate or render obvious the embodiments of the invention set forth in these claims or in claims 12, 15, 16, 18, 20, 21, 25 and 27 which depend from one of these claims.

Fleck et al.

Claims 1, 3, 4, 6, 8, 11, 12, 15-21, 23 and 25 were rejected under 35 U.S.C. §102(b) as being anticipated by Fleck et al. (U.S. Pat. 3,733,091).

The Examiner's rejection is respectfully traversed in view of amendments to independent claims 1, 17, 19 and 23.

Claims 1, 17, 19 and 23 are amended to recite: that the knee protection airbag is arranged to substantially fill a space between the knees and lower extremities of the occupant when seated on the front seat and the instrument panel in the deployed position such that the airbag cushions only the knees and lower extremities of the occupant (claim 1), which is in a position to engage only the knees and lower extremities of the occupant upon inflation (claim 17), which is structured and arranged to deploy into a position in which it engages only the knees or lower extremities of a vehicle occupant upon inflation (claim 19) or which is structured and arranged to deploy into a position in which it engages only the knees or lower extremities of the occupant upon inflation (claim 23).

In the present claimed invention, the knee airbag is not designed to cushion the torso of the occupant but rather, another airbag is designed to cushion the torso. The knee airbag is directed solely to cushioning the knees and/or lower extremities of the occupant. To this end, the knee airbag is designed to deploy into a position below an "upper airbag" to fill a void below the upper airbag. This feature is described in the specification at page 37, lines 17-20.

A significant advantage is achieved by providing different airbags to protect the torso and to protect the knees and/or lower extremities in that the force-deflection requirements for the knee and/or lower extremities is different than that for the torso. Thus, for an airbag which protects only the knees and/or lower extremities, the forces are more localized, the pressures are higher and venting is typically not required. By contrast, for a torso-protecting airbag, the forces are less localized, the pressures lower and venting is almost standard.

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In Fleck et al., there is an airbag 26 which is deployed from the instrument panel to a position between the torso of the occupant and the instrument panel (see Fig. 1). A small portion of the airbag is situated between the knees of the occupant and the lower surface of the instrument panel. The main portion of the airbag 26 is in front of the instrument panel to cushion the torso of the occupant.

Fleck et al. does not disclose, teach or suggest a knee airbag which cushions only the knees and/or lower extremities of an occupant.

In view of this difference, Fleck et al. does not disclose, teach or suggest all of the features of claims 1, 17, 19 and 23 and therefore cannot anticipate or render obvious the embodiments of the invention set forth in these claims or in claims 3, 4, 6, 8, 11, 12, 15, 16, 18, 20, 21 and 25 which depend from one of these claims.

Kirchoff

Claims 1 and 5 were rejected under 35 U.S.C. §102(b) as being anticipated by Kirchoff (U.S. Pat. 4,360,223).

Claim 1 is amended to recite a single knee protection airbag which defines a plurality of interconnected, adjoining cells.

Kirchoff describes an airbag system with a knee airbag 28 and an upper, torso airbag 30 which is inflated when gases pass through an opening 32 in the knee airbag 28.

In contrast to the invention, in Kirchoff, there is no single airbag which defines interconnected, adjoining cells.

In view of this difference, Kirchoff does not disclose, teach or suggest all of the features of claim 1 and therefore cannot anticipate or render obvious the embodiments of the invention set forth in this claim or in claim 5 which depend therefrom.

Claim Rejections-35 U.S.C. §103

Claim 2

Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Fleck et al. in view of Nicolson (U.S. Pat. 3,760,414).

The Examiner's rejection is respectfully traversed because Nicolson does not disclose an anticipatory crash sensor system coupled to an inflator and arranged to direct the inflator to inflate an airbag "prior to the crash".

Nicolson describes a vehicle safety apparatus in which an actuator 46 controls inflation of an airbag 303. However, inflation or expansion of the airbag 303 only occurs in the event of a collision, i.e.,

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after the collision or crash has occurred, to protect the passengers during the rapid deceleration (see col. 11, lines 10-14). Nicolson therefore does not disclose that the airbag 303 is inflated prior to the crash.

Since this feature is also not disclosed in Fleck et al., one skilled in the art could not combine Fleck et al. and Nicolson and arrive at the embodiment of the invention set forth in claim 2.

Claim 7

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Graebe in view of Lohr et al. (U.S. Pat. 3,900,210) and Seizert (U.S. Pat. 5,044,663).

Lohr et al. and Seizert do not disclose, teach or suggest the features now set forth in claim 1 upon which claim 7 depends and therefore one skilled in the art could not combine Fleck et al. with Lohr et al. and Seizert and arrive at the embodiment of the invention set forth in claim 7.

Claim 10

Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Graebe in view of Sack (U.S. Pat. 3,638,755).

The Examiner's rejection is respectfully traversed.

Claim 10 is amended to clarify that the net which surrounds the airbag comprises a network of multi-directional material strips. Graebe and Sack do not disclose, teach or suggest such a net.

Sack describes an airbag including an inner bag 4 and an outer elastic bag 2. Outer elastic bag does not include a network of multi-directional material strips.

Since this feature is also not disclosed in Graebe, one skilled in the art could not combine Graebe and Sack and arrive at the embodiment of the invention set forth in claim 10.

Claims 26 and 27

Claims 26 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fleck et al. in view of Graebe.

The Examiner's rejection is respectfully traversed.

Claim 26 now recites that the vehicle includes an instrument panel and an inflatable tubular bolster for a vehicle with the tubular bolster comprising an airbag comprising a plurality of interconnected, adjoining cells and structured and arranged to deploy into a position entirely below the instrument panel of the vehicle.

Fleck et al. and Graebe does not disclose a multi-cell airbag which deploys entirely below the instrument panel of the vehicle.

Fleck et al. describes an airbag 26 which is deployed from the instrument panel to a position in front of the instrument panel and only partially below the instrument panel (see Fig. 1).

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Graebe describes an airbag system with a plurality of individual airbags 40. There is no single airbag which defines interconnected, adjoining cells, chambers or compartments.

Since Fleck et al. and Graebe do not disclose an airbag as set forth in claim 26, one skilled in the art could not combine Fleck et al. and Graebe and arrive at the embodiment of the invention set forth in claim 26 or in claim 27 which depends therefrom.

Claim 28

Claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Fleck et al. in view of Graebe and Sobkow (U.S. Pat. 3,702,706).

Sobkow does not disclose, teach or suggest the features now set forth in claim 26 upon which claim 28 depends and therefore one skilled in the art could not combine Sobkow and Graebe and arrive at the embodiment of the invention set forth in claim 28.

In view of the foregoing, it is respectfully submitted that the Examiner's rejections of claims 1-8, 10-12, 15-21, 23 and 25-28 have been overcome and should be removed and that the present application is now in condition for allowance.

Allowable Subject Matter/New Claims

Claims 9, 13, 14, 22, and 24 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 35-43 are presented herein. Claims 35-38 are directed to the feature of the knee airbag deploying to fill a void below an upper airbag and depend from independent claims 1, 17, 19 and 23, respectively.

Claim 39 constitutes original claim 9 rewritten in independent form and to overcome the objection to claim 9. Claim 40 constitutes original claim 13 rewritten in independent form and to overcome the rejection of claim 12. Claim 41 includes the same subject matter as claim 14 but depends on new claim 40. Claim 42 constitutes original claim 22 rewritten in independent form. Claim 43 constitutes original claim 24 rewritten in independent form.

In view of the Examiner's indication of allowable subject matter in claims 9, 13, 14, 22 and 24, claims 39-43 should be allowable over the prior art of record.

In view of the presentation of claims 35-43 and cancellation of claims 25 and 29-34, there will be two extra claims in excess of twenty and three extra independent claims in excess of three. The additional

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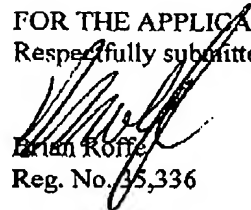
claims fee of \$350, based on small entity status, for presentation of two extra claims and three extra independent claims should be charged to Deposit Account No. 50-0266.

Interview Request

If the Examiner should determine that the application can readily be placed into condition for allowance, for example, by making minor changes to the claims, the Examiner is respectfully requested to contact the undersigned to discuss the same.

An early and favorable action on the merits upon entry and consideration of this amendment is earnestly solicited.

FOR THE APPLICANT
Respectfully submitted,


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